NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

National Environmental Policy Act; Finding of No Significant Impact (FONSI)

AGENCY:
National Aeronautics and Space Administration (NASA)
Johnson Space Center White Sands Test Facility
Las Cruces, New Mexico

ACTION:
NASA proposes to perform Orion Launch Abort System (LAS) ground operations and flight testing to ensure the system is effective during both simulated, unmanned, launch, and ascent operations. These non-crewed pad abort and ascent abort tests would evaluate the effectiveness of the proposed LAS to safely return astronauts in the event of an unforeseen emergency.

SUMMARY:
The Constellation Program is scheduled to be completed in phases over several decades. A Constellation Programmatic Environmental Impact Statement (EIS) Notice of Intent was published in September 2006. The anticipated completion date of the EIS is no later than summer 2008. However, to meet the aggressive schedule necessary to develop the Constellation Program in time to succeed the Space Shuttle Program, the proposed construction and LAS testing would start before EIS completion.

DATE:
August 5, 2007

RESPONSIBLE OFFICIALS:
Frank J. Benz
Manager
NASA White Sands Test Facility

Donald E. Reed, Lead
Orion Flight Test Office
NASA Johnson Space Center

ADDRESS:
NASA Johnson Space Center White Sands Test Facility
P.O. Box 20
Las Cruces, New Mexico 88004

FOR FURTHER INFORMATION CONTACT:
Timothy J. Davis
Environmental Scientist
NASA Johnson Space Center White Sands Test Facility
(505) 524-5024
Fax: (505) 527-6731
E-mail: timothy.j.davis@nasa.gov

BACKGROUND AND DESCRIPTION OF PROPOSED ACTION:
NASA has embarked on a new vision for space exploration. This vision includes the retirement of the Space Shuttle program and design, construction, testing, and implementation of the Constellation Program's Orion project for the exploration of the Moon, Mars, and beyond. An integral part of the Orion

project is the LAS. The LAS would provide a mechanism for the Crew Module (CM) to rapidly separate from the launch vehicle and safely return astronauts to Earth in the event of an emergency during launch operations. To accomplish this portion of the exploration vision, NASA is proposing flight testing at the U.S. Army White Sands Missile Range (WSMR). These non-crewed launches would evaluate the effectiveness of the proposed LAS to safely return astronauts in the event of an unforeseen emergency.

NASA and WSMR representatives would collaboratively design and construct a launch facility for LAS testing at the preferred location of Launch Complex (LC)-32. Construction would begin in late 2007 with completion dates estimated at mid-2008. After construction is completed, the proposed action also includes initial vehicle ground processing, integration, and checkouts followed by actual flight testing. The ground processing and flight test portion of the project would start in late 2008 and conclude by 2012. Flight testing would include up to six tests; two pad abort flight tests, and four ascent abort flight tests. The final (fourth) ascent abort flight test in the series would be performed at high-altitude using a 2nd stage booster. All flight components would land on WSMR property and would be recovered.

ALTERNATIVES CONSIDERED:
As part of the Environmental Assessment, NASA has considered the potential impacts associated with two alternative actions evaluated for the test program at LC-32. The two reasonable alternatives are: 1) an alternative location at WSMR; and 2) the no action alternative. Alternative launch site locations at WSMR include the Dog Site, LC-33, LC-50, LER-4, and the Small Missile Range. All alternative locations meet the same testing and safety requirements as needed at LC-32. The alternative sites allow for flight distance requirements, skilled personnel, existing infrastructure, and operational support, and are remote locations on WSMR that would not pose a threat to public safety. However, the use of the alternative WSMR launch complexes could impact the overall schedule of the Orion LAS project. Due to their current use and locations, airspace and scheduling would require more effort at the alternative sites. In addition, the NASA program would not be considered a top priority and the LAS test launches would have to accommodate the schedules of other test programs at those launch sites. The no action alternative would include no new facilities, structures, or launch testing operations at WSMR and would prevent any environmental impacts associated with the construction of a new launch pad and with the impacts associated with launching the LAS Test System.

POTENTIAL ENVIRONMENTAL EFFECTS:
Environmental aspects were examined pertaining to the following areas: land use, climate, geology, soils, air, biological resources, cultural resources, noise, socioeconomic issues, infrastructure, and hazardous wastes. The following section summarizes the conclusions for relevant environmental issues:

> **Land use and Airspace**- The proposed construction of a new pad and buildings at LC-32, flights, and landings are typical of activities carried out at WSMR. LC-32 is an existing launch site designed for this purpose. The sites uprange are also used for landing other test missiles and vehicles at WSMR. No significant land use impacts are expected from any proposed activities at the proposed site or the alternative launch complexes.
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> **Climate -** The proposed test launches, landings, and associated activities would not alter the climate at WSMR.
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> **Geology -** Geology at the launch facilities and landing sites would not be significantly affected. Launch activities would take place within an established launch complex. Efforts would be made to minimize potential impacts at the landing sites.
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> **Soils -** The greatest potential for soil disturbance from the proposed action or alternatives would be associated with the landing of the LAS vehicle uprange. The ground impact associated with the

LAS is variable depending on soil density at the landing site, travel distance, and altitude of the vehicle. Since the test vehicle is designed to support human life in the event of an emergency, the parachutes and other features required for a safe landing should decrease and minimize the impact at landing. There would also be minimal soil disturbance at the launch site due to construction of new facilities. But since the launch complexes already have buildings and other structures in place, soil disturbance would be low. Overall, the soil and soil quality would not be significantly affected by the proposed LAS testing.

Air Quality - Construction at LC-32 would generate man-made dust from the activities. To minimize dust during these activities, dust control measures, such as water trucks or dust suppressants, would be used. LAS vehicle exhaust, combustion products from fuels burned in internal combustion engines, and dust raised by vehicles traveling on the unpaved roads would be the principle impacts to air quality as a result of the proposed action activities.

Water Resources - No permanent water bodies (e.g. stream, creeks) occur in the vicinity of LC-32 or within the landing areas. Therefore, surface water would not be affected by the proposed action. In addition, groundwater resources would not be significantly impacted by the proposed action. Although minor amounts of water could temporarily accumulate in places where thin layers of sediment form atop the bedrock surfaces, especially during the summer rainy season, it is unlikely there would be quantities of groundwater of any significance.

Biological resources - The proposed project area has no habitat critical to the survival or reproduction of any listed species of plant or animal.

Cultural resources - Based on previous surveys of LC-32, the proposed alternative complexes, and the proposed landing sites, there are no known cultural resources that would be affected by the proposed activities. The V-2 landmark at LC-33 is the closest known resource that could be impacted. For the safety of the structural integrity of the landmark buildings and structures, a vibration monitor will be installed prior to testing of the LAS. If any undiscovered archeological site is uncovered during construction, site construction would cease until historic preservation issues are resolved.

Noise and Vibration - Any loud noise or vibration generated during testing activities would be infrequent, very short in duration, and not be expected to affect the local wildlife. Thus, the proposed testing would have no significant impact on conditions that currently exist.

Socioeconomic issues - No significant impact to employment, population, and economic activity is expected from the proposed action or alternatives. The current level of socioeconomic activity would not significantly change or be adversely affected. Personnel working in support of the proposed activities would include military, civil servants, and contractors. Proposed activities would provide small socioeconomic benefits primarily for the cities of Las Cruces and Alamogordo. In addition, there would be no significant impact on, nor a potential for, disproportionately high and adverse effects on minority and low-income populations.

Infrastructure and Utilities - The proposed action, which occurs entirely within WSMR boundaries, would not significantly impact public infrastructure or increase the burden on infrastructure.

Hazardous and Solid Waste - Hazardous materials, including test debris, would be recovered for final disposal and do not pose a significant source of solid or hazardous waste. The solid propellant is expected to be completely expended prior to landing and would not affect soil chemical quality.

All hazardous material and hazardous wastes would be recovered immediately, transported, stored, and disposed of in accordance with WSMR Regulation 200-1. No hazardous waste will be handled as solid waste or non-regulated waste. All solid waste generated at WSMR is collected by an off-site contractor and is disposed of in the Otero landfill.

PUBLIC COMMENT:
An Environmental Assessment that supports the Finding of No Significant Impact is available for public review at the Branigan Library (200 East Picacho Avenue, Las Cruces, NM; Reference Desk), and the Alamogordo Public Library (920 Oregon Ave, Alamogordo, NM; Reference Desk). All comments are invited for consideration by the NASA Environmental Program Manager within thirty calendar days of this notice. Address all correspondence to:

NASA White Sands Test Facility
Attn: Timothy J. Davis
RA, Environmental
P.O. Box 20
Las Cruces, NM 88004
Phone: (505) 524-5024
Fax: (505) 527-6731
E-mail: timothy.j.davis@nasa.gov

Approved By: *Original Signed by:*
Frank J. Benz
Manager
NASA Johnson Space Center
White Sands Test Facility

Concurred By: *Original Signed by:*
Donald E. Reed, Lead
Orion Flight Test Office
NASA Johnson Space Center

Publish: August 5, 2007